

**STRUCTURAL GENERAL NOTES:**

**DESIGN CRITERIA**

1. DESIGN LIVE LOADS ARE IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2003 EDITION, WITH THE FOLLOWING MINIMUM CRITERIA:

<b>FLOOR LOADS:</b>		
<b>OCCUPANCY OR USE:</b>	<b>LIVE LOAD:</b>	<b>CONCENTRATED LOAD:</b>
CATWALKS .....	40 p.s.f.	
STAIRS .....	100 p.s.f.	300 lbs. (● TREADS)
AERATION BASIN FLOOR .....	1720 p.s.f.	8000 lbs.
AEROBIC DIGESTER FLOOR .....	945 p.s.f.	8000 lbs.
STRUTS .....	150 p.l.f.	

**SNOW LOADS:**  
N/A

**SEISMIC LOADS:**  
TANK STRUCTURE IS BELOW GRADE. SEISMIC FORCES TRANSFER DIRECTLY TO ADJACENT SOILS AND DO NOT INFLUENCE THE LATERAL DESIGN OF THE STRUCTURE.

**WIND LOADS:**  
N/A

**FLOOD LOADS:**  
NOT IN FLOOD HAZARD ZONE

2. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE THE LOCATION OF MECHANICAL PENETRATIONS, FLOOR DRAINS, INSERTS, DEPRESSIONS, BURIED CABLES AND UTILITIES, ETC. WITH ARCHITECTURAL, CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS.
3. VERIFY ALL DIMENSIONS WITH CIVIL DRAWINGS, NOTIFY ENGINEER OF DISCREPANCIES. WRITTEN DIMENSIONS TAKE PRECEDENCE OVER SCALED DIMENSIONS.

**SOILS AND FOUNDATIONS**

1. FOUNDATION DESIGN IS IN ACCORDANCE WITH THE SOIL REPORT BY HEPWORTH-PAWLAK GEOTECHNICAL, INC, NUMBER 308121B, DATED MARCH 4, 2009.
2. DESIGNS OF FOOTINGS AND WALLS ARE BASED ON THE FOLLOWING CRITERIA:

FLUID PRESSURE FOR RETAINING:  
ACTIVE ..... 65 p.c.f.

3. DESIGN OF DRILLED PIERS IS BASED ON THE FOLLOWING CRITERIA:

MAXIMUM ALLOWABLE END BEARING PRESSURE .....	30,000 p.s.f.
MINIMUM ALLOWABLE END BEARING PRESSURE .....	15,000 p.s.f.
MAXIMUM ALLOWABLE SKIN FRICTION .....	2,500 p.s.f.
MINIMUM PENETRATION INTO BEDROCK .....	8.0 feet
MINIMUM DRILLED PIER LENGTH .....	20.0 feet

THE MAXIMUM VARIATION OF THE CENTER OF ANY DRILLED PIER AT ITS TOP FROM THE REQUIRED LOCATION SHALL NOT BE MORE THAN 5-1/2% OF ITS DIAMETER AND NO PIER SHALL BE OUT OF PLUMB MORE THAN 1% OF ITS LENGTH.

4. A REPRESENTATIVE OF THE SOILS ENGINEER SHALL INSPECT THE OPEN EXCAVATION TO DETERMINE THAT THE SOIL TYPE AND CONDITIONS ARE CONSISTENT WITH DESIGN CRITERIA OF THE SOILS REPORT. IF THE SOIL PROPERTIES ARE FOUND TO BE DIFFERENT FROM THIS CRITERIA, THEN THE ENGINEER SHALL BE PROMPTLY NOTIFIED SO THAT THE FOUNDATION DESIGN MAY BE REVIEWED.

**CONCRETE:**

1. ALL CONCRETE DESIGN, MATERIALS AND CONSTRUCTION SHALL CONFORM TO ACI STANDARD 318-02, THE INTERNATIONAL BUILDING CODE, 2003 EDITION, THE CRSI MANUAL OF STANDARD PRACTICE (CURRENT EDITION) AND THE PROJECT SPECIFICATIONS.

2. MATERIAL SPECIFICATIONS:

REINFORCING BARS .....	ASTM A615, GR. 60
REINFORCING BARS (WELDED) .....	ASTM A706, GR. 60

3. CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS AS FOLLOWS:

WALLS .....	4500 p.s.i.	CEMENT TYPE II MODIFIED
FLOOR SLABS .....	4500 p.s.i.	CEMENT TYPE II MODIFIED
DRILLED PIERS (5"-7" SLUMP) .....	3750 p.s.i.	CEMENT TYPE I/II

4. MATERIAL SPECIFICATIONS:

HEADED ANCHOR BOLTS ..... ASTM F1554, GRADE 36

5. REINFORCEMENT SHALL BE DETAILED IN ACCORDANCE WITH THE ACI DETAILING MANUAL, LATEST EDITION. FORMWORK SHALL BE DESIGNED, ERECTED AND REMOVED IN ACCORDANCE WITH THE SPECIFICATIONS.

6. REINFORCEMENT SHALL BE PLACED SO THAT THE FOLLOWING MINIMUM CONCRETE PROTECTION IS PROVIDED, UNLESS NOTED OTHERWISE.

CONCRETE SURFACES POURED AGAINST VOID FORM ..... 2" CLEAR

FORMED SURFACES EXPOSED TO GROUND OR WEATHER  
BARS #6 AND LARGER ..... 2" CLEAR  
BARS #5 AND SMALLER ..... 1-1/2" CLEAR

7. REINFORCEMENT SHALL BE SECURELY TIED AND SHALL BE SUPPORTED WITH METAL CHAIRS OR HUNG FROM FORMS.

8. CONTINUOUS HORIZONTAL BARS AND CORNER BARS IN WALLS AND SLABS SHALL BE LAPPED AS FOLLOWS AT SPLICES. SPLICE LOCATIONS SHALL BE STAGGERED WHERE POSSIBLE.

COMPRESSIVE STRENGTH	No. 6 BARS & SMALLER	No. 7 BARS & LARGER
4500 p.s.i.	47 db	58 db
4500 p.s.i.	71 db	87 db (EPOXY-COATED BARS)

9. VERTICAL DOWEL BARS IN WALLS AND COLUMNS SHALL BE LAPPED A MINIMUM OF 48 BAR DIAMETERS, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

10. GROUT UNDER BASE PLATES AND BEARING PLATES SHALL BE NON-SHRINK, NON-METALLIC GROUT WITH A MINIMUM COMPRESSIVE STRENGTH IN 28 DAYS OF 7500 p.s.i.

11. ADDITIONAL (2) #5 BARS (ONE EACH FACE) WITH A 2"-0" PROJECTION SHALL BE PLACED DIAGONALLY ACROSS THE CORNERS OF ALL OPENINGS UNLESS SHOWN OTHERWISE ON DRAWINGS.

12. WALLS ARE DESIGNED TO BE SUPPORTED BY FLOOR SLABS, INTERSECTING CONCRETE WALLS, AND STRUTS. BACKFILLING SHALL NOT BE ALLOWED UNTIL SUPPORTING STRUCTURAL ELEMENTS ARE IN PLACE OR ADEQUATE SHORING IS PROVIDED.

13. CONTROL AND/OR CONSTRUCTION JOINTS IN SLABS AND WALLS SHALL BE KEYED WITH CONTINUOUS WATERSTOP. THEY SHALL BE LOCATED ACCORDING TO THE JOINTING PLAN PROVIDED WITHIN THE CONSTRUCTION DOCUMENTS AND APPROVED BY THE ENGINEER.

14. FOR CORNERS IN CONCRETE SECTIONS GREATER THAN OR EQUAL TO 1'-6" THICK, WATERSTOP MAY BE FIELD WELDED OR HAVE CONTINUOUS MATERIAL DEFLECTED THROUGH CORNERS TO MAINTAIN CONTINUITY. ALL INTERSECTIONS OF WATERSTOP SHALL BE CONTINUOUSLY FIELD WELDED TO MAINTAIN CONTINUITY.

15. MECHANICAL REINFORCING COUPLINGS MAY BE USED ONLY WHEN SPECIFICALLY INDICATED ON THE DRAWINGS, LENTON FORM SAVER OR EQUAL. USE OF MECHANICAL REINFORCING COUPLINGS IN AREAS NOT SPECIFICALLY INDICATED ON DRAWINGS WILL REQUIRE A WRITTEN REQUEST BY THE CONTRACTOR AND APPROVAL FROM THE ENGINEER PRIOR TO STEEL REINFORCING FABRICATION, DELIVERY AND INSTALLATION.

REVISIONS		
NO.	DATE	DESCRIPTION
1	12/21/2010	ISSUED FOR FOUNDATION PERMIT SUBMITTAL TO PPRBD (A-BASINS AND DIGESTERS)
2	01/07/2011	ISSUED FOR CONSTRUCTION PER PPRBD PERMIT #58954 (FDN ONLY)

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<b>STRUCTURAL GENERAL NOTES</b> <b>AERATION BASINS AND AEROBIC DIGESTER BASINS</b> <b>HAROLD D. THOMPSON REGIONAL WATER RECLAMATION FACILITY</b> <b>LOWER FOUNTAIN METROPOLITAN SEWAGE DISPOSAL DISTRICT</b>		<b>GMS, INC.</b> CONSULTING ENGINEERS 611 N. WEBER, SUITE 300 COLORADO SPRINGS, COLORADO 80903	SHEET <b>1-7</b> OF -
DRAWN _____ GLY DESIGNED _____ MAM CHECKED _____ RJS DATE _____ MARCH 2010 PROJECT NO. _____ 20166.352 GMS FILE NO. _____ 2599			